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IS 2061 (1995): Bicycle--Front Forks--Specification (First Revision). UDC 629.118.3.011.5

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साइकिल — अगला चिमटा — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

BICYCLE — FRONT FORKS — SPECIFICATION

(First Revision)

UDC 629·118·3·011·5

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1995

Price Group 3

Bicycle Sectional Committee, TED 16

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bicycle Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was originally published in 1962. In this revision, all amendments relating to dimensions and impact test etc have been included. In addition the grade of steel tube have also been specified.

In preparing this standard, assistance has been derived from the following:

JIS B940 : 1951	Frame for Bicycle
BS 811 : 1950	Cycle Threads. British Standards Institution
BS 1717 : 1951	Steel Tubes for Cycle and Motor Cycle Purposes
G/Misc/119	Indigenous Bicycles, Directorate General of Supplies and Disposals, Government of India

Data Sheet No. 35b (Sheet No. 5) 'Fork Blades' the British Cycle and Motor Cycle Manufacturers and Traders Union Ltd.

The Committee Composition responsible for the preparation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

AMENDMENT NO. 1 NOVEMBER 2010
TO
IS 2061 : 1995 BICYCLE — FRONT FORKS — SPECIFICATION

(First Revision)

(*Page* 1, *clause* **2**) — Substitute '513 : 2008 Cold reduced low carbon steel sheet and strip (*fifth revision*)' *for* '513 : 1994 Cold-rolled low carbon steel sheets and strips (*fourth revision*)'.

(*Page* 1, *clause* **3.1**) — Substitute the following for the existing:

'**3.1** Fork column and fork blades shall be made from tubes conforming to grade designation ERW-C1 or ERW-C3 of IS 2039 (Parts 1 to 3) : 1991. Fork blades may also be made from CR Steel strip conforming to grade CR1 of IS 513.'

(TED 16)

Reprography Unit, BIS, New Delhi, India

Indian Standard
BICYCLE-FRONT FORKS — SPECIFICATION
(First Revision)

1 SCOPE

This standard covers the requirement for the front forks used in 4 sizes of bicycles, namely, 45, 50, 55 and 60.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	*Title*
513 : 1994	Cold-rolled low carbon steel sheets and strips *(fourth revision)*
2039 (Parts 1 to 3): 1991	Steel tubes for bicycle and cycle rickshaws *(second revision)*
2108 : 1977	Blackheart malleable iron casting *(first revision)*
2927 : 1975	Specification for brazing alloys *(first revision)*

3 MATERIAL

3.1 Fork column and fork blades shall be made from tubes conforming to grade designation ERW-C_1 or ERW - C_3 of IS 2039 (Parts 1 to 3) : 1991.

3.2 Fork liners shall be made of mild steel with sulphur and phosphorus contents not exceeding 0.06 percent each.

3.3 Fork crown shall be made of steel of DD grade of IS 513 : 1994 or malleable cast iron conforming to grade BM 340 of IS 2108 : 1977.

4 DIMENSIONS

The forks shall conform to the dimensions and tolerances given in Fig. 1 and those specified in IS 2039 (Parts 1 to 3) : 1991.

5 MANUFACTURE AND FINISH

5.1 The stem and the two legs of the fork shall be fitted squarely through liners into the fork crown, and the joints shall be properly brazed with solder conforming to Grade B of IS 2927 : 1975. The legs shall be symmetrical with the centre line of the stem. The axis of the hub shall be parallel and square. The threads shall be so formed as to facilitate easy fitting and replacement.

5.2 The fork shall be thoroughly cleaned, rust-proofed and suitably finished.

6 SAMPLING

For tests on the finished forks, the scale of sampling shall be as agreed to between the purchaser and the supplier.

7 TESTS

7.1 Acceptance Tests

7.1.1 *Load Test*

The fork shall be clamped rigidly, as shown in Fig. 2, on its stem with its axis being kept horizontal and the fork ends turned upwards keeping the fork crown clear of the clamp jaws by 8 mm. A vertical load shall be applied on the fork ends, just where the front wheel axle is to be fitted so that the load acts on both ends equally. The load shall be increased until it reaches 45 kg. The fork shall be kept in this loaded state for 30 seconds. The fork shall not show a permanent set of more than 1.6 mm at the point of loading.

7.1.2 *Expansion Test*

The distance between the free ends of fork legs, when expanded by 13 mm by pushing them over a mandrel or any suitable device, shall not show any measurable permanent increase under ordinary methods of measurement.

7.1.3 *Test of Finish*

7.1.3.1 A solid steel ball, measuring 13 mm in diameter, shall be dropped from a height of 1.5 metres on any painted portion of the fork. The paint at the place where the steel ball strikes shall stand this test without showing any sign of tear or peeling off.

7.1.3.2 *Chemical test*

The painted leg of the fork shall be dipped for one hour in a 5 percent sodium chloride solution at the temperatures specified below. The paint shall not soften, peel off or show any appreciable change in shade:

a) Stoved black enamel	80°C
b) Stoved enamel other than black	60°C

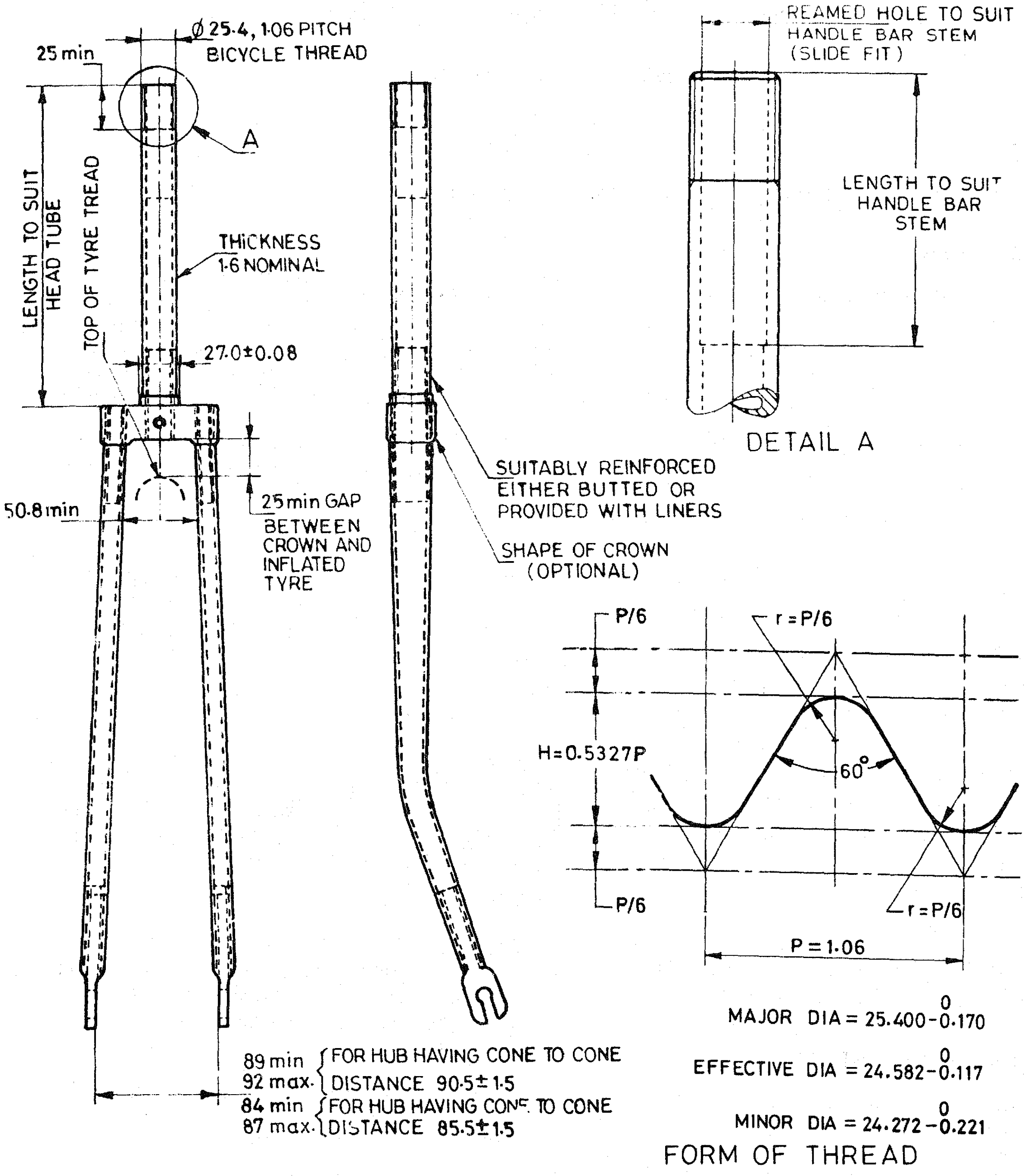
7.1.4 *Impact Test (Falling Mass)*

When tested by the method given in **7.1.4.1**, there shall be no visible evidence of fracture, and the permanent deformation of the assembly, measured between the centre lines of the axle, shall not exceed 40 mm.

7.1.4.1 *Method*

This test shall be conducted on a frame (Gents/Ladies) and fork assembly. Where a frame is convertable for male and female riders by the removal of a bar, it shall be tested with the bar removed.

The distance between the axle centre-lines shall be


Ø25.4, 1.06 PITCH BICYCLE THREAD
25 min
A
LENGTH TO SUIT HEAD TUBE
TOP OF TYRE TREAD
THICKNESS 1.6 NOMINAL
27.0±0.08
50.8 min
25 min GAP BETWEEN CROWN AND INFLATED TYRE
SUITABLY REINFORCED EITHER BUTTED OR PROVIDED WITH LINERS
SHAPE OF CROWN (OPTIONAL)
89 min / 92 max. FOR HUB HAVING CONE TO CONE DISTANCE 90.5±1.5
84 min / 87 max. FOR HUB HAVING CONE TO CONE DISTANCE 85.5±1.5
REAMED HOLE TO SUIT HANDLE BAR STEM (SLIDE FIT)
LENGTH TO SUIT HANDLE BAR STEM
DETAIL A
P/6
r = P/6
H=0.5327P
60°
P/6
r = P/6
P = 1.06
MAJOR DIA = 25.400 - 0.170 / 0
EFFECTIVE DIA = 24.582 - 0.117 / 0
MINOR DIA = 24.272 - 0.221 / 0
FORM OF THREAD

NOTES

1 This figure does not specify any design details.

2 Other threads may be permitted as per agreement between the purchaser and the supplier.

All dimensions in millimetres.

Fig. 1 Front Fork (Schematic)

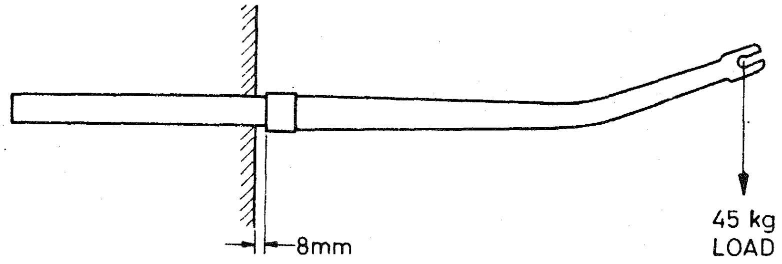


FIG. 2 LOAD TEST ON FORK

measured. A low mass roller, 1 kg *Max*, shall be assembled in the front fork, and the frame/fork assembly held vertically and clamped to a rigid fixture by the rear axle attachment points as shown in Fig. 3.

A mass of 22.5 kg shall be dropped vertically through a height of 180 mm so as to strike the low-mass roller at a point in line with the wheel centres and against the direction of the fork rake.

7.1.5 *Impact Test (Falling Frame/Fork Assembly)*

When tested by the method given in **7.1.5.1**, there shall be no visible evidence of fracture.

7.1.5.1 *Method*

The test shall be conducted on the frame/fork/roller assembly used for the test in **7.1.4.1**.

The assembly shall be mounted at the rear axle attachment points so that it is free to rotate about the rear axle, in a vertical plane. The front fork shall be supported by a flat steel anvil so that the frame is in its normal position of use. A mass of 70 kg shall be securely fixed to the seat pillar. The assembly shall be rotated about the rear axle so that the centre of gravity of the 70 kg mass is vertically above the rear axle and then allowed to fall freely to impact on the anvil (*see* Fig. 4).

The test shall be repeated to provide a total of two such impacts.

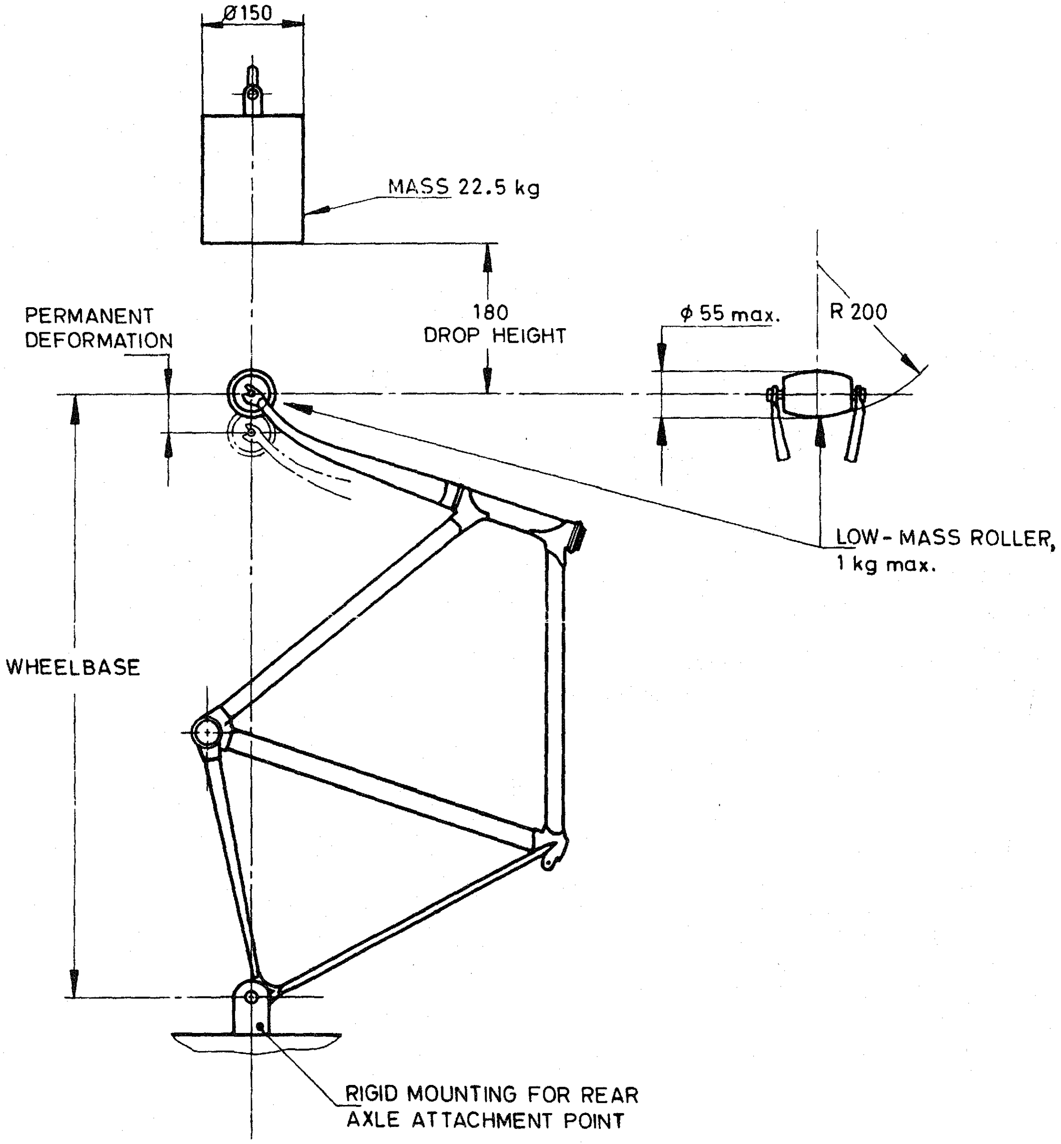
8 MARKING

8.1 The fork shall bear the source of manufacturer's name, initials or registered trade-mark and country of origin.

8.2 BIS Certification Marking

The product may also be marked with Standard Mark.

8.2.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.



All dimensions in millimetres.

FIG. 3 IMPACT TEST (FALLING MASS)

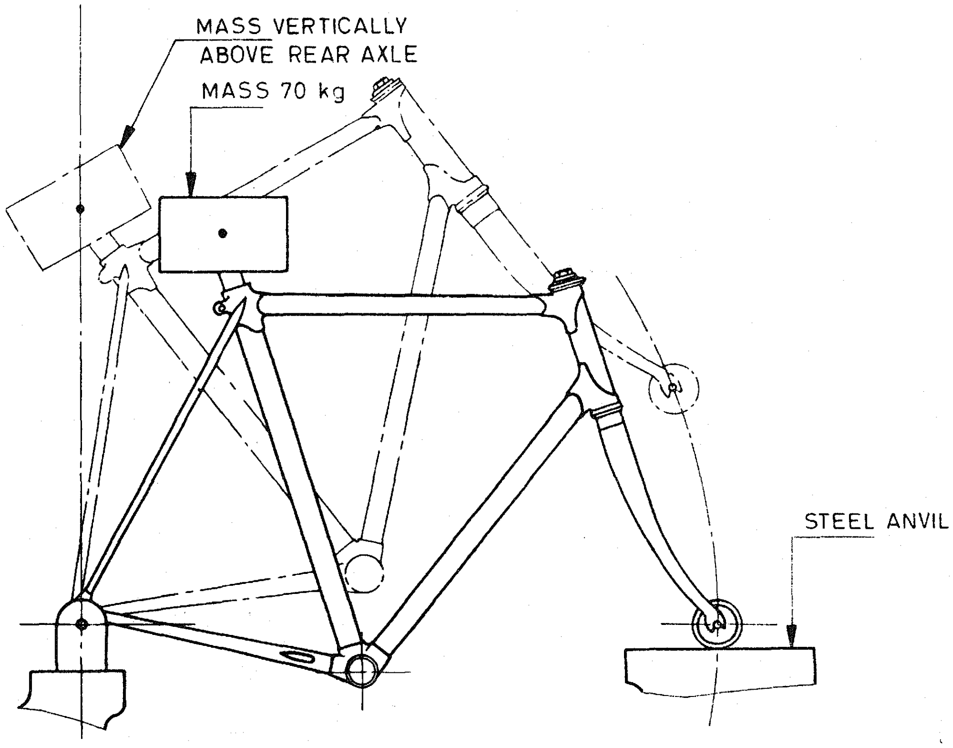


Fig. 4 Impact Test (Falling Frame/Fork Assembly)

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Bicyles Sectional Committee, TED 16

Chairman	*Representing*
Shri K. Padmanabhan	TI Cycles of India, Madras
Members	
Shri M. Srinivasan (*Alternate* to Shri K. Padmanabhan)	
Shri Ajit Singh Shri Darshan Singh (*Alternate*)	Kular Cycle Industries, Ludhiana
Shri H. S. Bains Shri J. S. Randhawa (*Alternate*)	Bicycle and Sewing Machine (R&D), Ludhiana
Shri Madan Singh Bharara Shri Joginder Kumar (*Alternate*)	United Cycle & Parts Manufacturers Association, Ludhiana
Shri Harinder P. Bhogal Shri Naginder Singh Bhogal (*Alternate*)	Bhogal Sons (Regd), Ludhiana
Shri Brijmohan Lall Shri S. K. Rai (*Alternate*)	Hero Cycle Ltd, Ludhiana

Members	*Representing*
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Shri P. P. Dasgupta	Dunlop India Ltd, Calcutta
Shri K. Subramanian (*Alternate*)	
Shri Satish Kumar Dhanda	Sadem Industries, Ludhiana
General Manager	Director of Industries Punjab, Chandigarh
Senior Technical Officer (*Alternate*)	
Shri Amrit Goyal	Roadmaster Industries of India Ltd, Rajpura
Shri T. R. Thatai (*Alternate*)	
Shri A. K. Gupta	Director of Industries Haryana, Chandigarh
Shri R. N. Goyal (*Alternate*)	
Shri T. Sen Gupta	Ralson India Ltd, Ludhiana
Shri G. Sehgal (*Alternate*)	
Shri Girish Kapur	Atlas Cycle Industries Ltd, Sonepat
Shri Lok Nath Naseem (*Alternate*)	
Shri Harsh Kumar	Tata Iron and Steel Co Ltd, Jamshedpur
Shri C. B. Lunawat (*Alternate*)	
Shri Joginder Kumar	J. K. Cycles, Ludhiana
Shri I. C. Khanna	Directorate General of Supplies & Disposals, New Delhi
Shri R. K. Khanna	Allied Exports (I), Ludhiana
Shri A. R. Kulkarni	Ministry of Defence (DGQA) - (V), Ahmednagar
Shri A. N. Khardenavis (*Alternate*)	
Shri Inderjit Singh Pahwa	Avon Cycles Ltd, Ludhiana
Shri Harcharan Singh (*Alternate*)	
Shri Rajiv Raizada	Export Inspection Council of India, New Delhi
Shri T. S. Narula (*Alternate*)	
Shri Sardar Singh	Navyug Bicycle Industries, Ludhiana
Shri Abhijit Sen	Sen & Pandit Pvt Ltd, Calcutta
Shri S. K. Chakraborty (*Alternate*)	
Shri Jagdeep Singla	Eastman Industries, Ludhiana
Shri K. Subramanian	Hartex Rubber Ltd, Hyderabad
Shri S. Kanojia (*Alternate*)	
Shri Sushil Kumar	Department of Technical Development, Ministry of Industry, New Delhi
Shri S. S. Gupta (*Alternate*)	
Shri Gulshan Rai, Director (Transport Engineering)	Director General, BIS (*Ex-officio member*)

Member Secretary

Shri S. B. Roy
Joint Director (Transport Engineering), BIS